DATALOGIC™

MATRIX FAMILY

Setup Procedure Using Programming Barcodes

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Setup Procedure Using Programming Barcodes

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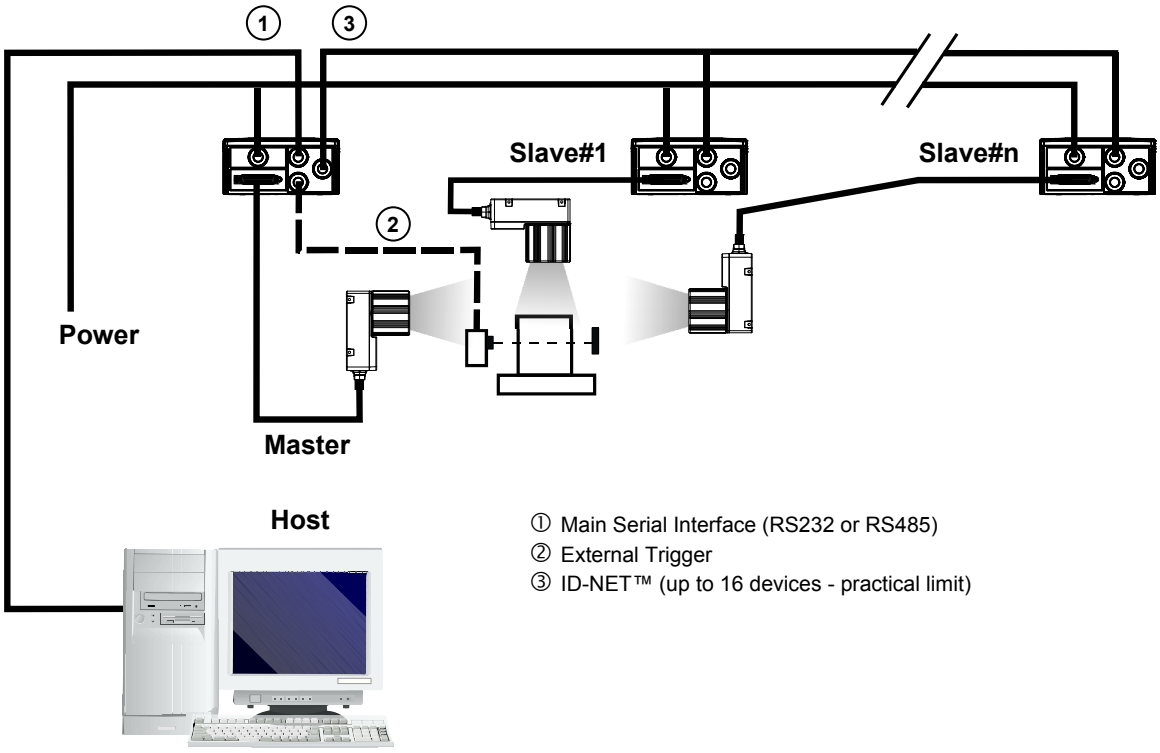
1 ID-NET™ NETWORK SETUP USING PROGRAMMING BARCODES

For Matrix Family readers[1] having software 5.60 or later, programming barcodes can be used to setup the ID-NET™ built-in high-speed interface dedicated for high-speed reader interconnection. ID-NET™ is in addition to the Main and Auxiliary serial interfaces.

Following topologies are available:

- **ID-NET™ M/S Synchronized**: Single station – multiple readers



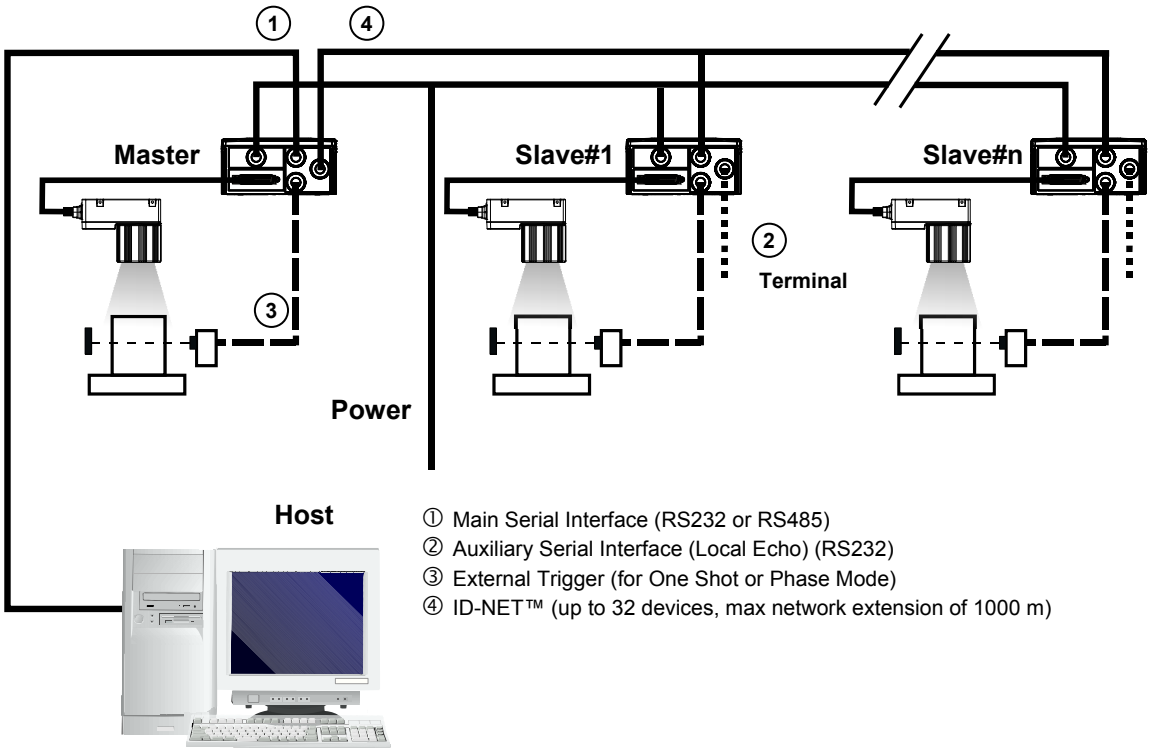
The ID-NET™ interface allows local connection of multiple readers that are reading on different sides of the same target. All readers share a single presence sensor and activate/deactivate simultaneously.

At the end of each reading phase a single data message is transmitted to the host.

Thanks to ID-NET™, data communication among readers is highly efficient so that an immediate result will be available.

[1] Except Matrix 200™ and Matrix 210™ UHD models.

- **ID-NET™ M/S Multidata**: Multiple stations – single reader



The ID-NET™ interface allows connection of readers that are reading objects placed on independent conveyors. All readers are typically located far away from each other and they use a dedicated presence sensor.

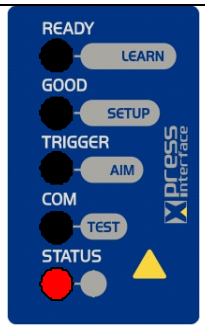
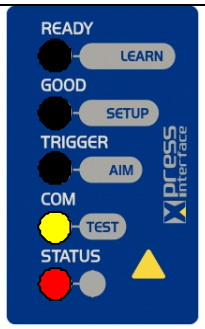
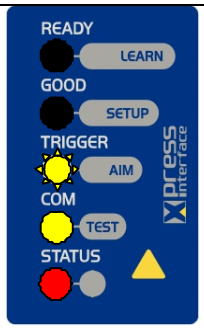
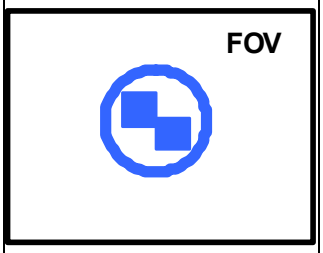
At the end of each reading phase, every reader transmits its own data message to the host.

Thanks to ID-NET™, data collection among readers is accomplished at a high speed without the need of an external multiplexing device. This leads to an overall cost reduction and to simplified system wiring.

1.1 FOR MATRIX 200™ AND MATRIX 210™

AIM

1. Power the reader on. During the reader startup (reset or restart phase), all the LEDs blink for one second. On the connector side of the reader near the cable, the “POWER ON” LED (blue) indicates the reader is correctly powered.
2. Enter the Aim/Locate function by pressing and holding the X-PRESS™ push button until the Aim LED is on. Release the button to enter the Aim function. The aiming system turns on see below.

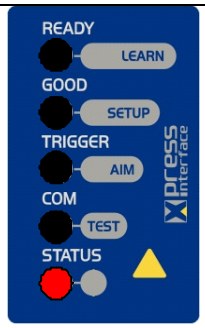
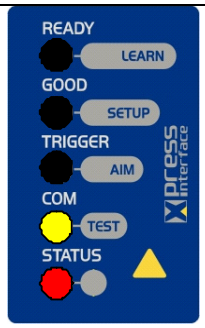
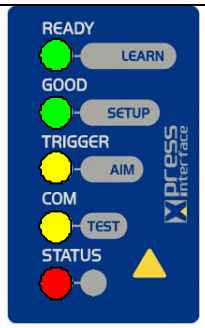
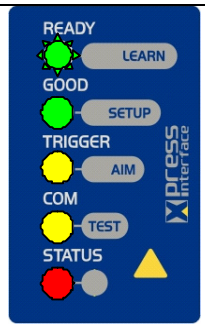
			
Just pressed. ➔	After 2 seconds. ➔	After 4 seconds. Release the button to enter the **Aim Mode.** ➔	The yellow AIM LED blinks: the **Aim Mode** is working.

3. Place the application specific code in front of the reader at the reading distance indicated for your model in the Reading Features table, centering it in the aiming system indicator.

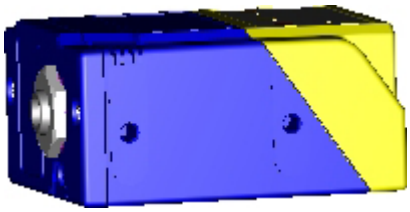
4. Exit the Aim function by pressing the X-PRESS™ push button once. The aiming system turns off.

LEARN

1. Press and hold the X-PRESS™ button to enter the “AutoLearn Mode”. Once button is pressed, the LED cycle appears as follows:

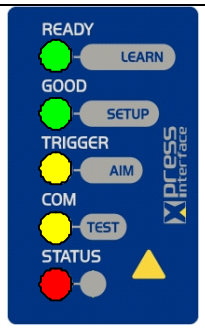
			
Just pressed. ➔	After 2 seconds. ➔	After 8 seconds. Release the button to enter the **AutoLearn Mode.** ➔	The green LEARN LED blinks: the **AutoLearn Mode** is working.

2. Now, put the barcode related to the planned role and address in front of the reader. The picture below shows, as example, the reader configuration as “Slave 1” [2] :



Slave 1

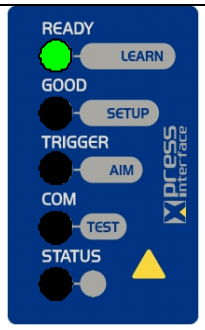
3. Once the reader has successfully read the code, the LEDs stay on steady for 2 seconds:



Successful reading.

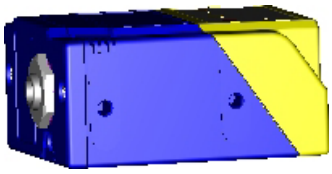
[2] the barcodes shown are examples, only. Use the barcodes in the Network Layout Barcodes paragraph for the actual programming.

4. The reader is programmed and the AutoLearn Mode ends. The green “ready” LED is on.

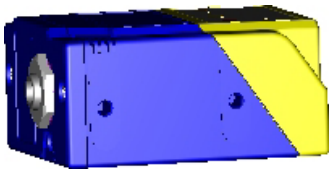


Programming done.

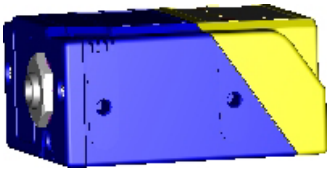
5. Repeat the AIM and LEARN procedures for each reader to configure all the slaves and master. For master readers select the code related to the correct number of slaves in the ID-NET™ network. The maximum number of readers is 32, including the master.



Master + x Slave(s)



Slave 1



Slave n

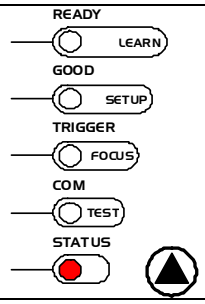
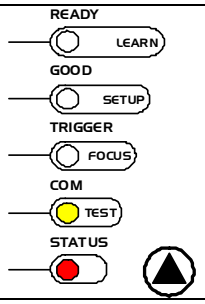
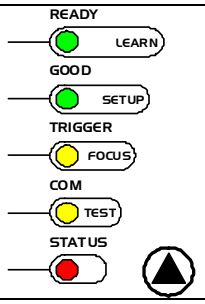
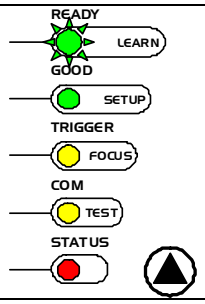
NOTE

Any network role can also be programmed using VisiSet™. Refer to the Help On Line documentation for further details.

1.2 FOR MATRIX 400™ AND MATRIX 410™

1. Perform the setup procedures described in the Quik Reference Guide, including Focus and Image Density Calibration.

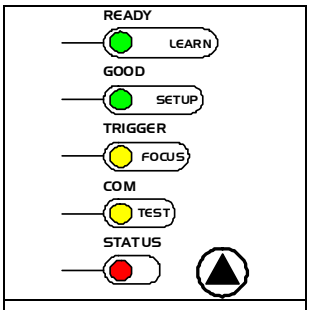
2. Press and hold the X-PRESS™ button to enter the “AutoLearn Mode”. Once button is pressed, the LED cycle appears as follows:

			
➔ Just pressed.	➔ After 2 seconds.	➔ After 8 seconds. Release the button to enter the **AutoLearn Mode.**	The green LEARN LED blinks: the **AutoLearn Mode** is working.

3. Now, put the barcode related to the planned role and address in front of the reader. The picture below shows, as example, the reader configuration as “Slave 1” [3] :

Slave 1

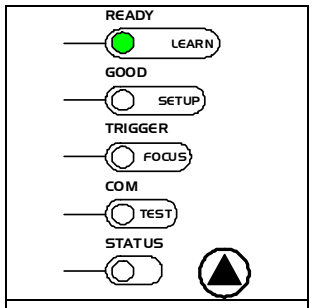
4. Once the reader has successfully read the code, the LEDs stay on steady for 2 seconds:



Successful reading.

[3] the barcodes shown are examples, only. Use the barcodes in the Network Layout Barcodes paragraph for the actual programming.

5. The reader is programmed and the AutoLearn Mode ends. The green “ready” LED is on.



Programming done.

6. Repeat the procedure for each reader to configure all the slaves and master. For master readers select the code related to the correct number of slaves in the ID-NET™ network. The maximum number of readers is 32, including the master.

Master + x Slave(s)

Slave 1

Slave n

NOTE

Any network role can also be programmed using VisiSet™. Refer to the Help On Line documentation for further details.

NOTE

If it ever becomes necessary to return to a Point-to-Point (Stand Alone) configuration you can execute the Reset Reader To Factory Default procedure from the X-PRESS™ push button.

1.3 RESET READER TO FACTORY DEFAULT (OPTIONAL)

If it ever becomes necessary to reset the reader to the factory default values, you can perform this procedure by holding the X-PRESS™ push button pressed while powering up the reader. **You must keep the X-PRESS™ push button pressed until the power up sequence is completed** (several seconds) and all LEDs blink simultaneously 3 times.

All LEDs remain on for about 1 second, then off for one second, the Configuration and Environmental parameters are reset, and the status LED remains on. If connected through a CBX500 with display module, the message "Default Set" is shown on the display.

1.4 NETWORK LAYOUT BARCODES

- **ID-NET™ M/S Synchronized - Master**

Master + 1 Slave

Master + 2 Slaves

Master + 3 Slaves

Master + 4 Slaves

Master + 5 Slaves

Master + 6 Slaves

Master + 7 Slaves

Master + 8 Slaves

- **ID-NET™ M/S Synchronized - Master**

Master + 9 Slaves

Master + 10 Slaves

Master + 11 Slaves

Master + 12 Slaves

Master + 13 Slaves

Master + 14 Slaves

Master + 15 Slaves

- **ID-NET™ M/S Synchronized - Slave**

Slave 1

Slave 2

Slave 3

Slave 4

Slave 5

Slave 6

Slave 7

- **ID-NET™ M/S Synchronized - Slave**

Slave 8

Slave 9

Slave 10

Slave 11

Slave 12

Slave 13

Slave 14

Slave 15

- **ID-NET™ M/S Multidata - Master**

Master + 1 Slave

Master + 2 Slaves

Master + 3 Slaves

Master + 4 Slaves

Master + 5 Slaves

Master + 6 Slaves

Master + 7 Slaves

Master + 8 Slaves

- **ID-NET™ M/S Multidata - Master**

Master + 9 Slaves

Master + 10 Slaves

Master + 11 Slaves

Master + 12 Slaves

Master + 13 Slaves

Master + 14 Slaves

Master + 15 Slaves

Master + 16 Slaves

- **ID-NET™ M/S Multidata - Master**

Master + 17 Slaves

Master + 18 Slaves

Master + 19 Slaves

Master + 20 Slaves

Master + 21 Slaves

Master + 22 Slaves

Master + 23 Slaves

Master + 24 Slaves

- **ID-NET™ M/S Multidata - Master**

Master + 25 Slaves

Master + 26 Slaves

Master + 27 Slaves

Master + 28 Slaves

Master + 29 Slaves

Master + 30 Slaves

Master + 31 Slaves

- **ID-NET™ M/S Multidata - Slave**

Slave 1

Slave 2

Slave 3

Slave 4

Slave 5

Slave 6

Slave 7

- **ID-NET™ M/S Multidata - Slave**

Slave 8

Slave 9

Slave 10

Slave 11

Slave 12

Slave 13

Slave 14

Slave 15

- **ID-NET™ M/S Multidata - Slave**

Slave 16

Slave 17

Slave 18

Slave 19

Slave 20

Slave 21

Slave 22

Slave 23

- **ID-NET™ M/S Multidata - Slave**

Slave 24

Slave 25

Slave 26

Slave 27

Slave 28

Slave 29

Slave 30

Slave 31

2 TCP/IP ETHERNET INTERFACE TO HOST

2.1 FOR MATRIX 400 OR MATRIX 200 FAMILY READERS

For Matrix 400 or Matrix 200 readers[4] having software 5.60 or later, connected to either a QL500 or a BM2x0 module (inside a CBX connection box), you can setup the Ethernet communication with programming barcodes.

Ethernet TCP/IP enabled
DHCP enabled

Using the X-PRESS™ interface setup functions described in the Quick Reference Guide, correctly position the reader and read one of these barcodes with the **Learn** function.

The reader can now communicate using Ethernet TCP/IP.

For reader configuration through VisiSet™ using Ethernet TCP/IP, follow one of the procedures in par. 2.3.

Ethernet TCP/IP enabled
DHCP disabled
(uses static IP Address parameters) *

The Factory Default static IP address parameter settings for all QL500 or BM2x0 modules are:

- IP Address = 172.24.24.1
- Subnet Mask = 255.255.0.0
- Gateway Address = 172.24.255.254

NOTE

*For Matrix 400™ Ethernet models, Ethernet TCP/IP is enabled with the above static IP address parameter settings by default. Therefore, it is not necessary to read the **DHCP disabled** programming barcode for these models.*

[4] Except Matrix 200™ UHD models.

2.2 FOR MATRIX 410 OR MATRIX 210 FAMILY READERS

For Matrix 410 or Matrix 210 readers[5] having software 6.10 or later, connected to either a QL500 or a BM2x0 module (inside a CBX connection box), you can setup the CBX Ethernet communication with programming barcodes.

CBX Ethernet TCP/IP enabled
DHCP enabled

Using the X-PRESS™ interface setup functions described in the Quick Reference Guide, correctly position the reader and read one of these barcodes with the **Learn** function.

The reader can now communicate using CBX Ethernet TCP/IP.

For reader configuration through VisiSet™ using Ethernet TCP/IP, follow one of the procedures in par. 2.3.

CBX Ethernet TCP/IP enabled
DHCP disabled
(uses static IP Address parameters) *

The Factory Default static IP address parameter settings for CBX Ethernet TCP/IP for all Matrix 410 or Matrix 210 readers are:

- IP Address = 172.24.24.1
- Subnet Mask = 255.255.0.0
- Gateway Address = 172.24.255.254

[5] Except Matrix 210™ UHD models.

For Matrix 410 or Matrix 210 Ethernet readers[6] having software 6.10 or later, you can Enable the DHCP Addressing by reading the following programming barcode.

Embedded Ethernet TCP/IP enabled
DHCP enabled

Using the X-PRESS™ interface setup functions described in the Quick Reference Guide, correctly position the reader and read the barcode with the **Learn** function.

The reader can now communicate using the Embedded Ethernet TCP/IP with DHCP addressing.

For reader configuration through VisiSet™ using Embedded Ethernet TCP/IP with DHCP, follow the procedures in par. 2.3.1.

The Factory Default static IP address parameter settings for Embedded Ethernet for all Matrix 410 or Matrix 210 readers are:

- IP Address = 172.24.24.1
- Subnet Mask = 255.255.0.0
- Gateway Address = 172.24.255.254

NOTE

For Matrix 410™ or Matrix 210™ Ethernet models, Ethernet TCP/IP is enabled with the above static IP address parameter settings by default. Therefore, to disable the DHCP for the Embedded Ethernet it is necessary to Restore the Factory Default (see par. 1.3).

[6] Except Matrix 210™ UHD models.

2.3 IP ADDRESS ALIGNMENT PROCEDURES FOR CONFIGURATION

In order to connect a Matrix reader to VisiSet™ using Embedded Ethernet TCP/IP or CBX Ethernet TCP/IP, the Ethernet IP Addressing parameters must be aligned between VisiSet™ and the reader.

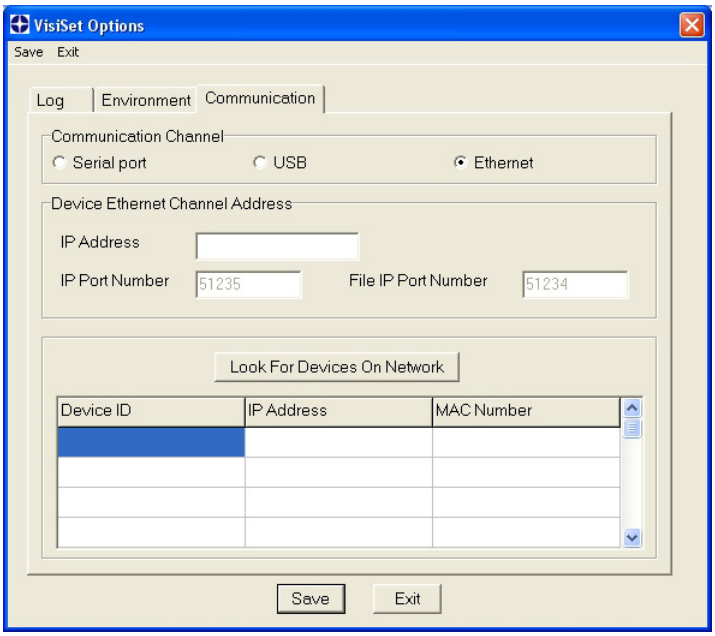
In order to find the reader using the VisiSet™ "Look For Devices On Network" tool, the reader and VisiSet™ must be on the same network (not through a sub-network or router).

The following procedures can be used:

2.3.1 DHCP Enabled

1. Read the **CBX Ethernet TCP/IP enabled DHCP enabled** barcode or **Embedded Ethernet TCP/IP enabled DHCP enabled** barcode using the X-PRESS™ **Autolearn** function (as described in chapter 1).

2. In VisiSet select the Ethernet Communication Channel in the Options>Communication window. Then press the **Look For Devices On Network** button. The Matrix reader will appear with its assigned IP Address in the list. If more than one device is found, verify the correct device by its MAC Address written on the product label.



3. Input the IP address from the list in the **IP Address** field of the Device Ethernet Channel Address section of the VisiSet™ Options>Communication window (or double-click on the device in the list). The IP port number is 51235. Then click **Save**.

4. Perform a Connect (to device) from VisiSet™.

NOTE

Devices working in DHCP may be assigned different IP addresses at each powerup, therefore steps 2 - 4 of the above procedure may need to be repeated at successive connections between VisiSet™ and the reader.

2.3.2 Static IP Addressing (DHCP Disabled)

1. For models connected to QL500 or CBX with BM2x0 modules: read the **CBX Ethernet TCP/IP enabled DHCP disabled** barcode using the X-PRESS™ **Autolearn** function (as described in chapter 1).

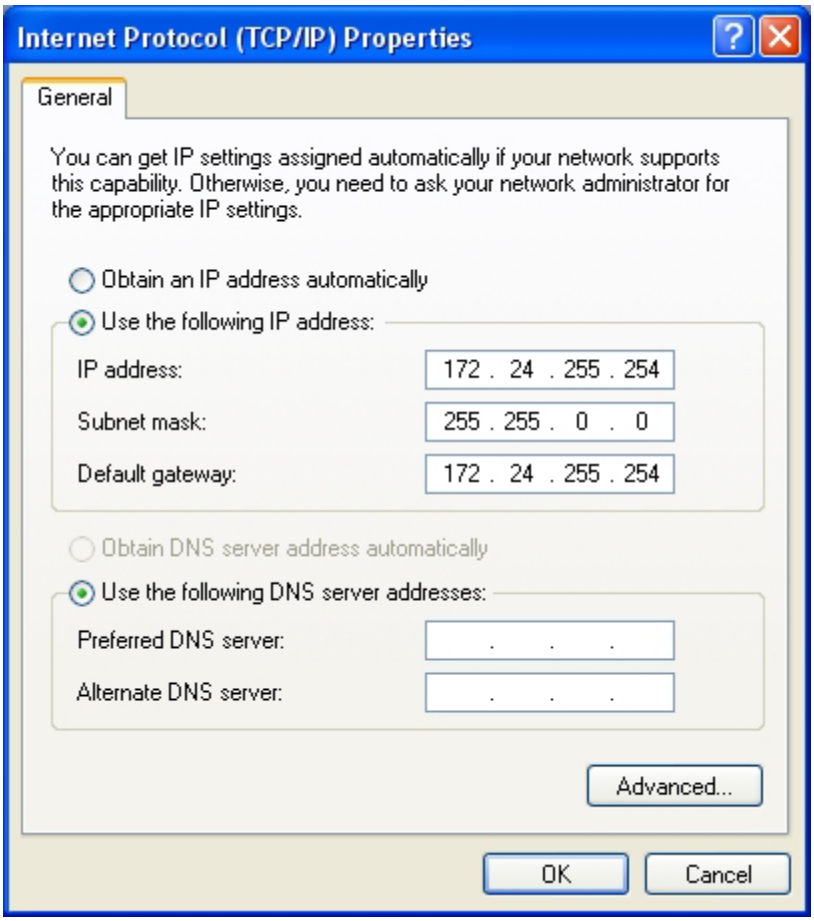
   For Embedded Ethernet models: this is the default setting. To disable DHCP for these models, restore the Factory Default settings as described in par. 1.3.

2. Before changing the Ethernet network settings on the PC running VisiSet™, close any open applications which use network resources (i.e. Outlook, or Web browser).

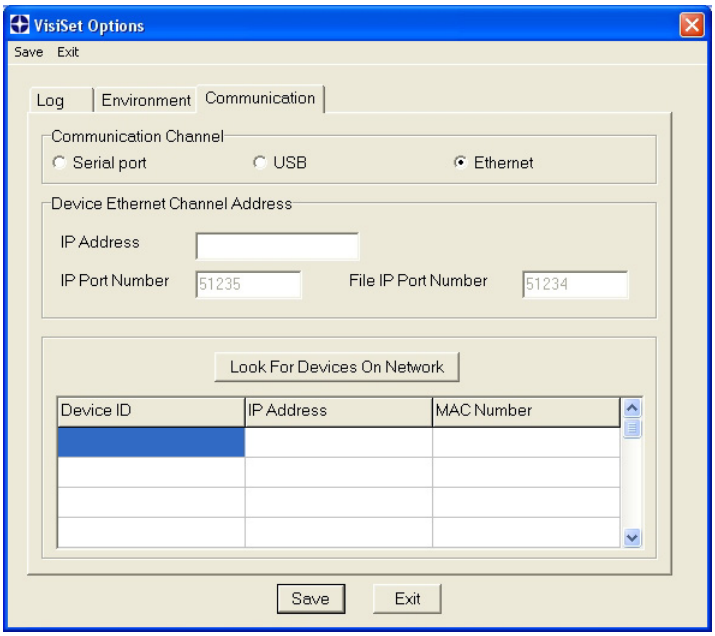
3. On the Configuration PC, from the Control Panel>Network Connections, right-click on the LAN connection icon and open the properties window.

4. Select the Internet Protocol (TCP/IP) item and open the properties window.

5. Set the IP Address fields as follows and click OK to save.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 172 . 24 . 255 . 254
Subnet mask: 255 . 255 . 0 . 0
Default gateway: 172 . 24 . 255 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

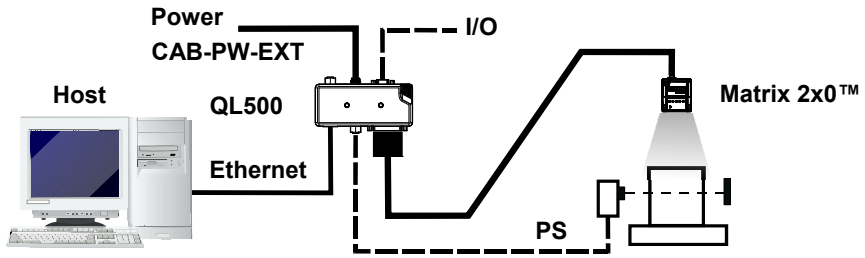
6. In VisiSet select the Ethernet Communication Channel in the Options>Communication window. Then press the **Look For Devices On Network** button. The Matrix reader will appear with its default IP Address in the list.



7. Input the IP address from the list in the **IP Address** field of the Device Ethernet Channel Address section of the VisiSet™ Options>Communication window (or double-click on the device in the list). The IP port number is 51235. Then click **Save**.

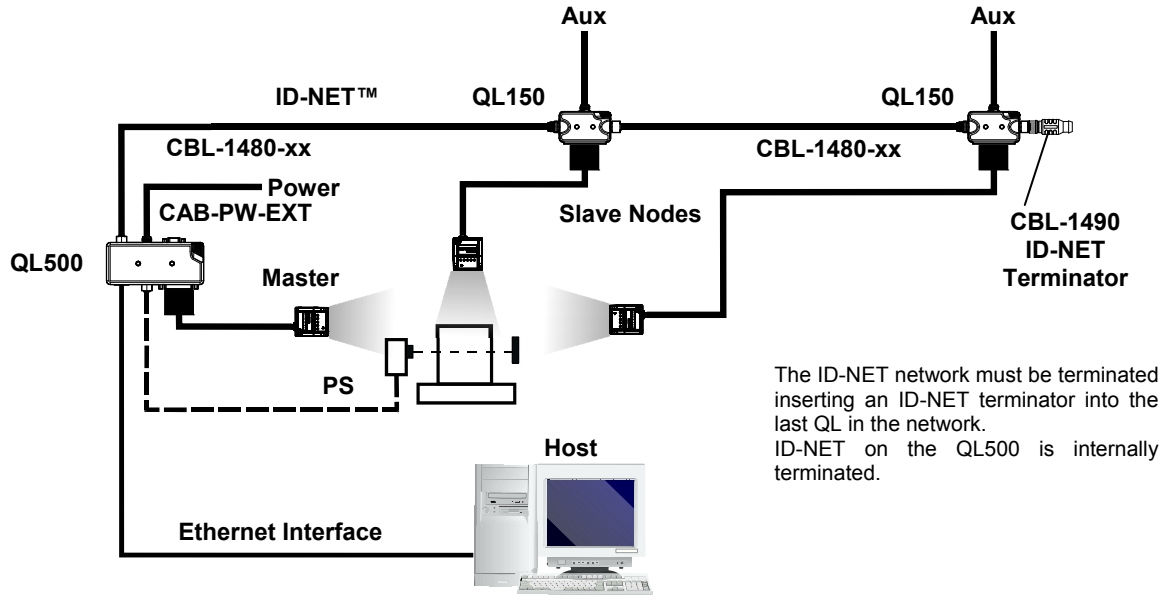
8. Perform a Connect (to device) from VisiSet™.

The following figures are examples of these layouts:



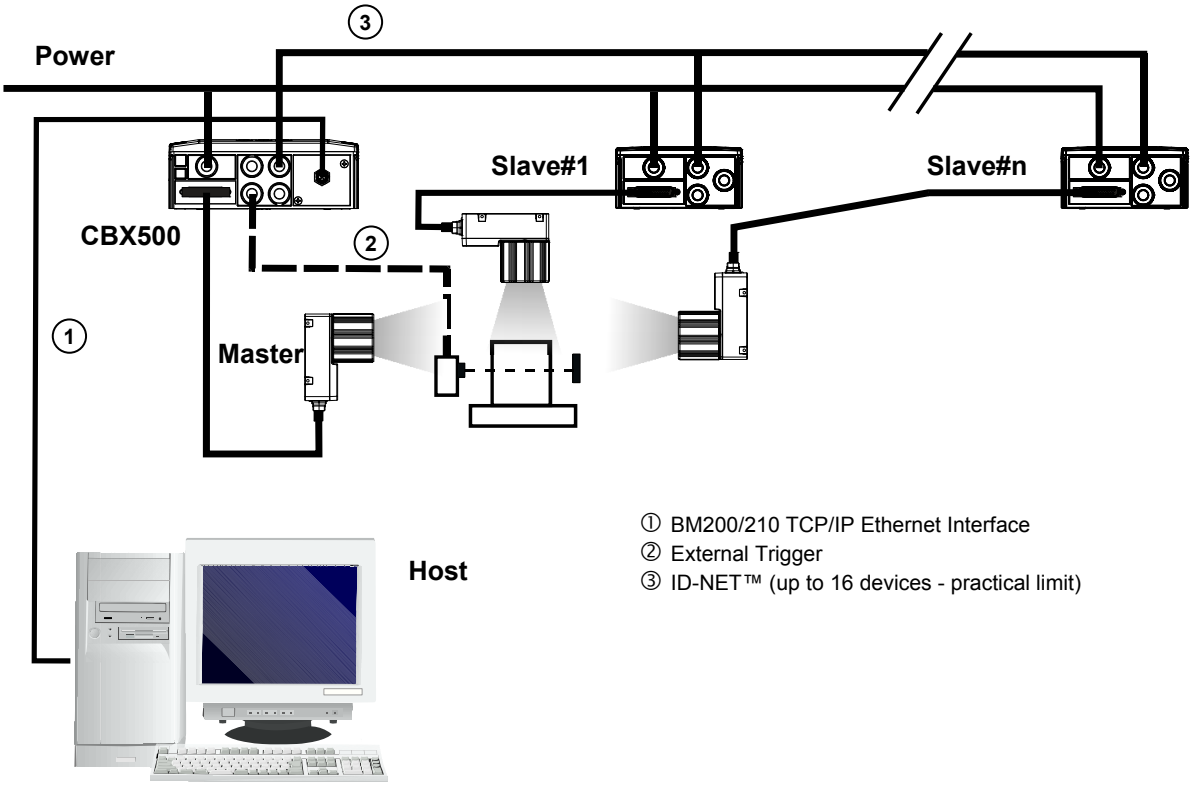
Point to Point - Matrix 200™ or Matrix 210™ with QL500 (Ethernet to Host)

The Point-to-Point reader must be configured for Ethernet communication using the specific programming barcode.

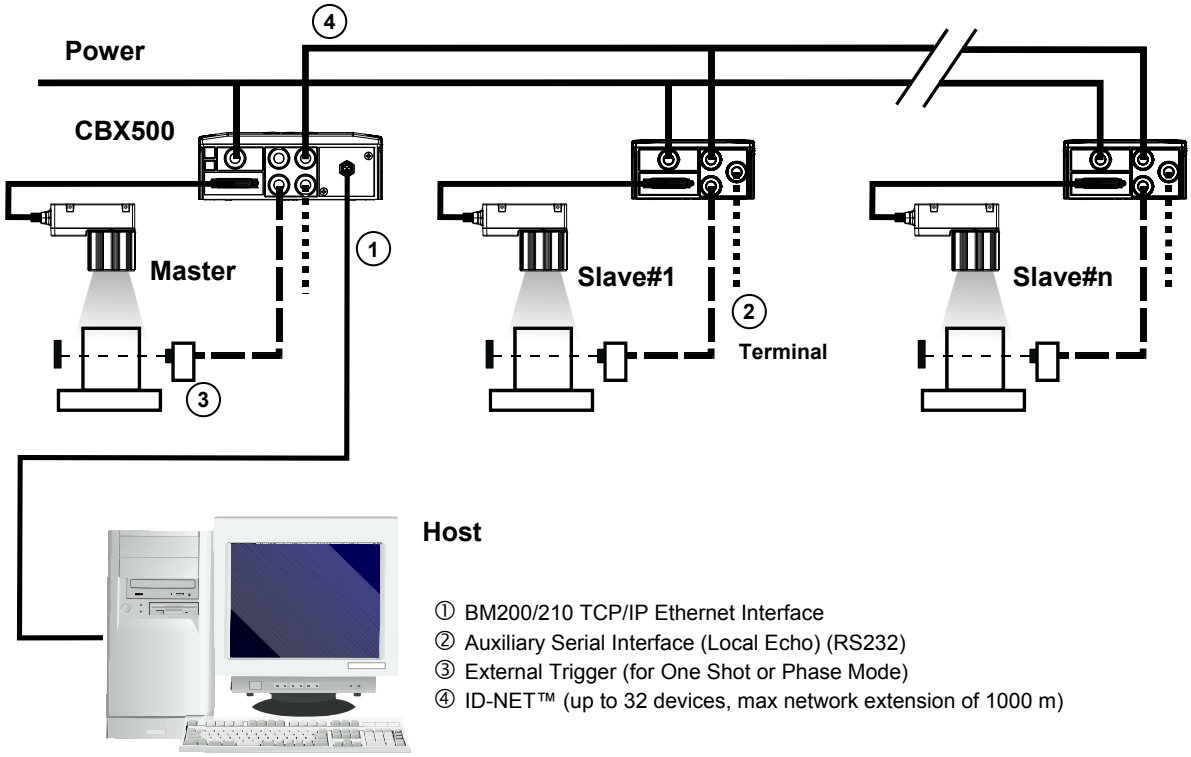


ID-NET™ M/S Synchronized Layout with QL500 TCP/IP Ethernet Interface to Host

The Master reader must be configured for Ethernet communication using the specific programming barcode.



ID-NET™ M/S Synchronized Layout with BM200/210 TCP/IP Ethernet Interface to Host



ID-NET™ M/S Multidata Layout with BM200/210 TCP/IP Ethernet Interface to Host

3 PARAMETER SETTING SUMMARY

The network setup through programming barcodes **automatically sets** all the necessary parameters in order to produce a consistent and correct configuration.

The following table summarizes the modified values and the related programming actions.

Programmed Code	Modified Parameters
Master Synchronized xx	Device Network Setting = Alone or ID-NET Topology Role = Master Synchronized EXPECTED SLAVE DEVICE Status = xx Slaves Enabled (from 1 to xx continuously numbered; all others Disabled) Operating Mode/ Operating Mode Selection = Phase Mode
Slave Synchronized xx	Topology Role = Slave Synchronized Slave Address = xx Operating Mode/ Operating Mode Selection = Phase Mode
Master Multidata xx	Topology Role = Master Multidata EXPECTED SLAVE DEVICE Status = xx Slaves Enabled (from 1 to xx continuously numbered; all others Disabled)
Slave Multidata xx	Topology Role = Slave Multidata Slave Address = xx
CBX Ethernet TCP/IP DHCP Enabled	**(only for Matrix 410™ or Matrix 210™, all models except USB)** CBX Gateway>Host Interface Type = Ethernet TCP/IP CBX Ethernet System Status = Enabled CBX Ethernet System DHCP Client = Enabled
CBX Ethernet TCP/IP DHCP Disabled	**(only for Matrix 410™ or Matrix 210™, all models except USB)** CBX Gateway>Host Interface Type = Ethernet TCP/IP CBX Ethernet System Status = Enabled CBX Ethernet System DHCP Client = Disabled (uses static IP address parameters) *
Embedded Ethernet TCP/IP DHCP Enabled	**(only for Matrix 410™ or Matrix 210™ Ethernet models)** Ethernet System Status = Enabled Ethernet System DHCP Client = Enabled
Embedded Ethernet TCP/IP DHCP Disabled (Default Setting)	**(only for Matrix 410™ or Matrix 210™ Ethernet models)** Ethernet System Status = Enabled Ethernet System DHCP Client = Disabled (uses static IP address parameters) *

* The Factory Default static IP address parameter settings are:

IP Address = 172.24.24.1

Subnet Mask = 255.255.0.0

Gateway Address = 172.24.255.254